X. ALTERNATIVES FOR DISPOSAL OF EXCAVATED MATERIAL

The restoration alternatives will require excavation volumes ranging from 3,600 to 120,000 cubic yards. A preliminary investigation of potential disposal locations was conducted to help evaluate the feasibility of this excavation. Figure X-1 shows the locations of the alternative disposal sites; these are summarized in Table X-1 and below in terms of capacity, and compatibility with existing land use. Final selection of a site will require further environmental analysis of the impacts of disposal on jurisdictional wetlands, riparian habitat, floodplain restoration, and upland habitats.

A. DISPOSAL BEYOND THE REDWOOD CREEK/GREEN GULCH WATERSHED

Disposal outside of the Redwood Creek/Green Gulch watershed would require long truck hauls over narrow roads such as Highway 1. In addition to the high disposal cost, this would involve extensive environmental impacts from the increased truck traffic. This alternative was therefore deemed infeasible for this preliminary assessment.

B. GREEN GULCH FIELDS 6 AND 7

These are the two lowest fields operated by the Green Gulch Farm, and would be adjacent to the restored wetlands. Field 6 is currently used intermittently for vegetable farming, and Field 7 is used for horse pasturing. Part of Field 7 would be included in the restored wetland.

The Green Gulch Farm has expressed interest in using fill material to level these fields and improve drainage (Rudnick, personal communication). Together Fields 6 and 7 would have about 4 acres available for disposal, with elevations ranging from +12 feet NGVD near the proposed wetland to +25 feet at the top of field 6. Excavated material could be placed to level most of the fields at between +20 and +26 feet NGVD (providing about a 1% slope for drainage). The fields could then slope down towards the edge of the restoration project at about 10:1. The fields could accommodate about 24,000 cubic yards of excavated material with this disposal configuration.

Important considerations for disposal include:

- The material should be tested for suitability as agricultural soil. Soil corings indicate that most of the material would consist of 1-2 feet of productive top soil underlain by several feet of silty sands. The silty sands would probably not be suitable as top soil, but could provide good drainage as substrate below either dredged top soil or stockpiled soil from the fields.

- Material handling to segregate and stockpile soil could increase costs of excavation and disposal.

- Disposal should provide adequate setback from Green Gulch Creek to accommodate future restoration efforts.

- Disposal should not interfere substantially with Green Gulch Farm's farming activities. The fields are currently not frequently used, and could be left out of production during excavation.

- Access would be directly through the fields and along an existing dirt road. Green Gulch is also interested in using suitable fill material to raise and stabilize this road. The longest truck haul would be about 1300 feet.

The 1.4 acre field below the upper reservoir was also considered but rejected because of adverse impacts on Green Gulch's leach field. Other sites in upper Green Gulch were not considered feasible, since these would require access through the main entrance and would unduly disrupt the functions of the Green Gulch Farm.

C. BANDUCCI FLOWER BULB AND HEATHER FARM

Banducci currently grows flowers on about 28 acres of level fields in Franks Valley adjacent to Redwood Creek. The fields are active for most of the year, except for the late fall and early winter months. Preliminary discussions with Banducci indicate that it is feasible to raise these fields by about 2 to 3 feet. Allowing for a 50 to 100-foot setback from Redwood Creek, this would leave 25 acres available for disposal. The fields could therefore accommodate between 80,000 and 120,000 cubic yards of fill. Important considerations for disposal include:

- The material should be tested for suitability as agricultural soil. Soil corings indicate that most of the material would consist of 1-2 feet of productive top soil underlain by several feet of silty sands. The silty sands would probably not be suitable as top soil, but could provide good drainage as substrate below either dredged top soil or stockpiled soil from Banducci's farm.

- Historically these fields probably functioned as the Redwood Creek floodplain during extreme floods. These fields have not been observed to flood since levees were constructed at selected low points (Banducci, 1993). Disposal on these fields should therefore account for potential future restoration of the historic floodplain.

One strategy would be to place the material at larger depths over a smaller area, and provide a wider setback from the creek bank.

- Excavation would probably occur in the summer, when the fields would be in full production. Banducci may therefore have to be compensated for loss of income during construction.

- Access would be on a dirt road that enters Highway 1 about 1800 feet from Pacific Way. This road would probably have to be raised and improved. There is potential to use excavated gravel and coarse material for this purpose. The longest truck haul would be about 5800 feet.

D. RIDING RING AND STATE PARK LAND ABOVE BANDUCCI

A riding ring and former dairy pasture cover about 7.5 acres in Franks Valley above Banducci's farm. Existing land uses include horse riding and hiking. This gently sloping area could probably be raised by 2 to 3 feet, providing 24,000 to 36,000 cubic yards of disposal. Important considerations include:

- Grading of the disposed material should be done to provide a natural topography that would not interfere with existing uses of the site.

- The material should be revegetated to restore existing meadow habitat values.

- The lower portions of the area are part of the Redwood Creek floodplain; adequate setbacks from the creek should be provided to minimize flood hazards and impacts on the geomorphic stability of the creek.

- Access would be through a fire road/trail that enters Franks Valley Road. The longest haul would be about 7500 feet.

- Much of the land is owned by the Mt. Tamalpais State Park. Disposal should be done in a manner consistent with the State Park's goals for the site.

E. THE BALLFIELD AREA IN LOWER FRANKS VALLEY

This area covers about 5.5 acres of fallow fields near the intersection of Franks Valley Road and Highway 1. The site is bordered by Franks Valley Road on south side and Redwood Creek on the northern side. A 2 to 5-foot levee separates the entire field from the creek; construction of this levee has been observed to cause increased flooding upstream (Banducci, personal communication).

Although this field is commonly referred to as the "Ballfield", it is currently overgrown with grasses and coyote brush. Raising the field by about 2 to 3 feet would provide 18,000 to 27,000 cubic yards of disposal. Important considerations include:

- Historically this field probably functioned as the Redwood Creek floodplain during extreme floods. These fields have not been observed to flood since the levees were constructed. Disposal should therefore account for potential future restoration of the historic floodplain.

- The site is owned by the GGNRA, and should be graded and revegetated in a manner consistent with Park Service goals for the site.

- Access would be directly off of Franks Valley Road, with a truck haul of about 7500 feet.

F. DISPOSAL ALONG THE PERIMETER OF THE RESTORED WETLAND

Upland areas adjacent to the restored wetland could be raised up to the level of the Highway 1. These would include the horse ring and Green Gulch Farm lots at the corner of Pacific Way and Highway 1, as well as the narrow area currently occupied by the Green Gulch trail along Highway 1.

The Highway currently lies at elevations between +17 and +19 feet NGVD. Assuming a 4:1 slope up from the edge of the restored riparian fringe, about 20,000 cubic yards could be disposed of on these uplands. Key considerations include:

- This would require minimal hauling, and would be the least expensive disposal alternative.

- The slope from the wetland up to the maximum fill elevation should be graded in a manner that provides a natural transition from the wetland to the road.

- The fill should be revegetated in a manner compatible with the restored wetland habitat, using non-invasive native plants.

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